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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Paul L. Marshall Delphi Technologies, Inc. M/C 480-410-202 P.O. Box 5052 Troy, MI 48007			EXAMINER YOUNG, NATASHA E	
			ART UNIT 1797	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/811,131

**Applicant(s)**

LABARGE ET AL.

**Examiner**

NATASHA YOUNG

**Art Unit**

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 19-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

Claims 19-25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group and species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on September 4, 2007.

Applicant's election of claims 1-18 in the reply filed on September 4, 2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 10-12, and 14-16 rejected under 35 U.S.C. 102(b) as being anticipated by Kondo et al (US 2002/0042344 A1).

Regarding claim 1, Kondo et al teaches a catalytic converter system comprising: an upstream substrate having a first diameter and also having an upstream catalyst disposed thereon, wherein greater than or equal to 70 wt % of the upstream catalyst is disposed at a core of the upstream substrate, said core having a diameter less than or equal to 63% of said first diameter, wherein the weight percent is based on a total

weight of the upstream catalyst disposed on the upstream substrate (see paragraphs 0072-0074 and figures 1-2), where a solution which contains the catalyst component is caused to flow through the middle portion A of the carrier, so as to deposit from 50% to 80% of the total quantity of catalyst therein and the cross-section of the gas inlet S corresponds to the diameter d, which is smaller than diameter D; portion A (core) is 1.1 to 2 times the cross-section S, such that the diameter of portion a (core) is 1.1 to 2 times diameter d, such that at it's smallest portion A's diameter would be 52.4% of the overall diameter.

Claim 2 depends on claim 1 such that the reasoning used to reject claim 1 will be used to reject the dependent portions of the claim.

Regarding claim 2, Kondo et al teaches a catalytic converter system wherein the upstream substrate is configured to receive greater than or equal to 60% of an exhaust flow volume through the core (see paragraph 0073), where 90% or more of the gas is purified in portion A.

Claim 3 depends on claim 2 such that the reasoning used to reject claim 2 will be used to reject the dependent portions of the claim.

Regarding claim 3, Kondo et al teaches a catalytic converter system wherein the upstream substrate is configured to receive greater than or equal to 70% of the exhaust flow volume through the core (see paragraph 0073), where 90% or more of the gas is purified in portion A.

Claims 4-5 and 10-11 depend on claim 1 such that the reasoning used to reject claim 1 will be used to reject the dependent portions of the claims.

Regarding claim 4, Kondo et al teaches a catalytic converter system wherein a close-couple converter comprises the upstream substrate (see figure 10 (b) and paragraph 0093).

Regarding claim 5, Kondo et al teaches a catalytic converter system wherein the upstream substrate is a rounded substrate (see figure 1).

Claim 10 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kondo et al (US 2002/0042344 A1).

Regarding claim 10, Kondo et al is silent regarding a catalytic converter system wherein in the system is capable of obtaining a light-off in less than or equal to 25 seconds.

However, the catalytic converter system of Kondo et al constructed such that the exhaust is concentrated in the middle portion (core) where the quantity of total catalyst is concentrated (see paragraphs 0073-0074) such that the system is capable of obtaining a light-off in less than or equal to 25 seconds.

In the alternative, it would have been obvious to one having ordinary skill in the art at the time the invention was made to obtain a light-off in less than or equal to 25 seconds, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (see MPEP 2144.05 (II-A)).

Regarding claim 11, Kondo et al teaches a catalytic converter system further comprising a downstream substrate in fluid communication with an upstream substrate, wherein the downstream substrate comprises a downstream catalyst disposed thereon,

wherein greater than or equal to 60 wt % downstream catalyst is distributed at a bulk of the downstream substrate (see paragraph 0093).

Claims 12 and 16 depend on claim 11 such that the reasoning used to reject claim 11 will be used to reject the dependent portions of the claims.

Regarding claim 12, Kondo et al teaches a catalytic converter system wherein greater than or equal to 80 wt % of the downstream catalyst is distributed at the bulk of the downstream substrate (see paragraph 0093).

Regarding claim 16, Kondo et al teaches a catalytic converter system wherein the upstream substrate and the downstream substrate are disposed in a housing, wherein a gap is disposed between the upstream substrate and the downstream substrate sufficient to create turbulent flow in the exhaust fluid prior to entering the downstream substrate (see paragraph 0093 and figure 10(b)).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo et al (US 2002/0042344 A1).

Claim 6 depends on claim 1 such that the reasoning used to reject claim 1 will be used to reject the dependent portions of the claim.

Regarding claim 6, Kondo et al teaches a catalytic converter system wherein greater than or equal to 50 wt % of the upstream catalyst is disposed at a reduced core having a diameter less than or equal to 52.4% of an overall diameter of the upstream substrate (see paragraphs 0072-0074 and figures 1-2), where a solution which contains the catalyst component is caused to flow through the middle portion A of the carrier, so as to deposit from 50% to 80% of the total quantity of catalyst therein and the cross-section of the gas inlet S corresponds to the diameter d, which is small than diameter D; portion A (core) is 1.1 to 2 times the cross-section S, such that the diameter of portion a

(core) is 1.1 to 2 times diameter  $d$ , such that at its smallest portion A's diameter would be 52.4% of the overall diameter.

Kondo et al does not teach a reduced core having a diameter less than or equal to 44% of an overall diameter of the upstream substrate.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a reduced core having a diameter less than or equal to 44% of an overall diameter of the upstream substrate, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (see MPEP 2144.05 (II-A)).

Claim 17 depends on claim 16 such that the reasoning used to reject claim 16 will be used to reject the dependent portions of the claim.

Claim 18 depends on claim 17 such that the reasoning used to reject claim 17 will be used to reject the dependent portions of the claim.

Regarding claims 17-18, Kondo et al teaches a catalytic converter system with a gap between two substrates in the same housing (see figure 10(b) and paragraph 0093).

Kondo et al does not teach that the gap is up to about 20 mm in length or about 10 mm to about 20 mm in length.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the gap is up to about 20 mm in length or about 10 mm to about 20 mm in length, since it has been held that where the general conditions of a



claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (see MPEP 2144.05 (II-A)).

Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo et al (US 2002/0042344 A1).as applied to claim 1 above, and further in view of Myer et al (US 6,454,317 B1).

Claim 8 depends on claim 1 such that the reasoning used to reject claim 1 will be used to reject the dependent portions of the claim.

Regarding claim 8, Kondo et al teaches a catalytic converter wherein an upstream converter comprises the upstream substrate, an inlet end, and an outlet end (see figures 1-2)

Kondo et al does not teach the inlet end comprises an end plate.

Myers et al teaches a catalytic converter system wherein the inlet end comprises an end plate (see Abstract and figures 4-5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Kondo et al with the teachings of Myers et al such that the inlet end comprises an end plate to lower exhaust system repair costs since the end plate is not permanently fixed to the structure.

Claim 9 depends on claim 8 such that the reasoning used to reject claim 8 will be used to reject the dependent portions of the claim.

Regarding claim 9, Kondo et al does not teach a catalytic converter system wherein an exhaust conduit is coupled to the end plate at an angle .theta. of about 90 degrees to a face of the end plate.

Myers et al teaches a catalytic converter system wherein an exhaust conduit is coupled to the end plate at an angle  $\theta$  of about 90 degrees to a face of the end plate (see Abstract and figures 4-5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Kondo et al with the teachings of Myers et al such that the inlet end comprises an end plate to lower exhaust system repair costs since the end plate is not permanently fixed to the structure.

Claims 7 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo et al (US 2002/0042344 A1) as applied to claim 1 above, and further in view of Ito et al (US 2002/0025381 A1).

Claim 7 depends on claim 6 such that the reasoning used to reject claim 6 will be used to reject the dependent portions of the claim.

Regarding claim 7, Kondo et al teaches a catalytic converter system wherein greater than or equal to 30 wt % of the upstream catalyst is disposed at a reduced core having a diameter greater than or equal to 52.4% of the overall diameter of the upstream substrate (see paragraphs 0072-0074 and figures 1-2), where a solution which contains the catalyst component is caused to flow through the middle portion A of the carrier, so as to deposit from 50% to 80% of the total quantity of catalyst therein and the cross-section of the gas inlet S corresponds to the diameter d, which is smaller than diameter D; portion A (core) is 1.1 to 2 times the cross-section S, such that the diameter of portion a (core) is 1.1 to 2 times diameter d, such that at its smallest portion A's diameter would be 52.4% of the overall diameter.

Kondo et al does not teach a catalytic converter system wherein greater than or equal to 30 wt % of the upstream catalyst is disposed at a second reduced core having a diameter less than or equal to 30% of the overall diameter of the upstream substrate.

Ito et al teaches a second catalytic converter with a second upstream catalyst substrate (see figure 2, elements 41 and 51).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Kondo et al with the teaching of Ito et al for improved purification of the exhaust gas by the additional of a second catalytic converter with a second upstream substrate.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a reduced core having a diameter less than or equal to 30% of an overall diameter of the upstream substrate, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (see MPEP 2144.05 (II-A)).

Claim 13 depends on claim 11 such that the reasoning used to reject claim 11 will be used to reject the dependent portions of the claim.

Regarding claim 13, Kondo et al does not teach a catalytic converter system further comprising an under-floor converter comprises the downstream substrate.

Ito et al teaches a catalytic converter system further comprising an under-floor converter comprises the downstream substrate (see figure 2, elements 41 and 51).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Kondo et al with the teaching of Ito et al

for improved purification of the exhaust gas by the additional of a second catalytic converter with a second upstream substrate.

Claim 14 depends on claim 13 such that the reasoning used to reject claim 13 will be used to reject the dependent portions of the claim.

Regarding claim 14, Kondo et al does not disclose a catalytic converter system wherein the under floor converter comprises an inlet portion configured to cause turbulent flow in the downstream substrate.

Ito et al teaches a catalytic converter system wherein the under floor converter comprises an inlet portion configured to cause turbulent flow in the downstream substrate (see figure 2, elements 41 and 51).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Kondo et al with the teaching of Ito et al for improved purification of the exhaust gas by the additional of a second catalytic converter with a second upstream substrate.

Claim 15 depends on claim 14 such that the reasoning used to reject claim 14 will be used to reject the dependent portions of the claim.

Regarding claim 15, Kondo et al teaches a catalytic converter system wherein the inlet portion comprises an end cone (see figure 2).

### ***Response to Arguments***

Applicant's arguments, see Remarks, page 13, lines 10-14, filed January 29, 2008, with respect to objections of the disclosure have been fully considered and are persuasive. The objections of disclosure have been withdrawn.

Applicant's arguments, see Remarks, page 13, lines 15-19, filed January 29, 2008, with respect to objections to claims 8 and 15 have been fully considered and are persuasive. The objections of claims 8 and 15 have been withdrawn.

Applicant's arguments, see Remarks, page 13, line 20 through page 14, line 4, filed January 29, 2008, with respect to 112, second paragraph, rejection of claim 14 have been fully considered and are persuasive. The 112, second paragraph, rejection of claim 14 has been withdrawn.

Applicant's arguments, see Remarks, page, 14, line 5 through page 15, line 21, filed January 29, 2008, with respect to the rejection(s) of claim(s) 1-18 under 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kondo et al (US 2002/0042344 A1), Myers et al (US 6,454,317 B1), and Ito et al (US 2002/0025281 A1).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fischer et al (US 2004/0005250 A1), Foster et al (US 2002/0057998 A1), and Yamamoto et al (US 2002/0197192 A1).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATASHA YOUNG whose telephone number is (571)270-3163. The examiner can normally be reached on Mon-Thurs 7:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NY

/Walter D. Griffin/  
Supervisory Patent Examiner, Art Unit 1797